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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,224	12/23/2005	Alexander Mueller	MULL3009/EJD	5317
23364 7590 05/12/2009 BACON & THOMAS, PLLC 625 SLATERS LANE FOURTH FLOOR ALEXANDRIA, VA 22314-1176				
EXAMINER				
SHABMAN, MARK A				
ART UNIT		PAPER NUMBER		
2856				
MAIL DATE		DELIVERY MODE		
05/12/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/562,224

**Applicant(s)**

MUELLER ET AL.

**Examiner**

MARK SHABMAN

**Art Unit**

2856

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 10, 11, 13 and 15-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10, 11, 13 and 15-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

Claim 10 is objected to because of the following informalities:

Line 2 of the claim recites that the process variable is "preferably" a fill level, viscosity or density. The removal of the word preferably is suggested for clarity.

Lines 5 and 8 contain the phrase "as the case may be" which should be removed for clarity purposes.

Line 18 recites the limitation of "the maximum ... allowable process conditions" which lacks antecedent basis as no maximum was previously disclosed.

Line 19 recites the limitation of "the maximum ... allowable process variables" which lacks antecedent basis as no maximum was previously disclosed.

Lines 17-21 of the claim as presented are difficult to understand in their current form. The phrase "the maximum with reference to the field device, allowable process conditions" and "the maximum, with reference to the field device and with reference to the application allowable process variable" appear to refer to a maximum frequency as opposed to a maximum allowable condition since the claim is read as the limit value being determined from the smallest oscillation frequency as a function of the maximum [frequency]. The specification on page 7 describes these limitations and contains parentheses around portions, which add to the clarity of the limitations. It is recommended to reword this claim to avoid any confusion as to what the maximum is referring to in both instances.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10, 11, 13, and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Angelico US Patent 6,389,891 (hereinafter referred to as D'Angelico).

Regarding **claim 10**, D'Angelico discloses an apparatus for monitoring a process variable of a medium such as filling level or density (abstract). The apparatus comprises an "oscillatable unit" 2 with a "driving/receiving unit" 6, a "control/evaluation unit" 10 which "produces an accretion alarm" (column 4 lines 34-40) when a change in frequency of the oscillation falls below an acceptable limit. Column 8 describes how a change of frequency in operating mode C relates to an increase of coating mass or accretion. The coating curves of figures 4 and 5 in D'Angelico are described as being determined empirically in column 7 and therefore the "adjustable limit value" which is used to determine whether a oscillating frequency is too low is "determined and/or calculated at least from measured dependencies" as claimed. Figure 3 of D'Angelico

shows a graph of the change in frequency of the oscillatable unit in relation to the amount of fluid it is immersed in. In the case of both mode A and mode B, a difference in frequency can be seen when accretion ( $m=m_a$ ) occurs on the oscillator. The immersion curves are a function of the depth of immersion as it relates to frequency and can thus be used to determine the adjustable limit value depending on fill level of the medium as claimed. For example, when the immersion is at a maximum allowable condition (i.e. full tank), the frequency with no accretion can be determined. It would have been obvious to one of ordinary skill in the art at the time of invention to have used this as a reference point for determining when the alarm is to trigger based on how much accretion (if any) is acceptable as the maximum fill level would provide the most dampening of frequency without added accretion and therefore any frequency lower would indicate a buildup. The alarm could thus be set to trigger at the first sign of accretion, which would drop the frequency of the oscillator below the limit value of the clean oscillator ( $m=0$ ) with reference to the process conditions and process variables of fill level.

Regarding **claim 11**, since the adjustable limit value is calculated empirically as previously disclosed, it is calculated as "a function of use of the field device" which can be either a "maximum switch" or "minimum switch" as claimed since the alarm is triggered when a frequency falls below a tolerable minimum.

Regarding **claim 13**, the apparatus of D'Angelico determines the "limit value" by taking into consideration a frequency change associated with the maximum allowable

accretion since the threshold for triggering the alarm is based on a set frequency detected.

Regarding **claim 15**, D'Angelico discloses an output unit 14 which is used as a "review unit" to produce an error message or "accretion alarm" independently of the control/evaluation unit. As stated previously, the alarm is generated when the frequency falls below a limit value.

Regarding **claim 16**, the apparatus of D'Angelico discloses the monitoring of the frequency to include increases in frequency as well as decreases. Thus, when the oscillations exceed an "over-value" an alarm or "report" is generated. The "over-value" is determined in the same way as the limit value and thus is calculated from measured or calculated dependencies of the oscillation frequencies of a process variable.

Regarding **claim 17**, it can be seen in figure 3 for example, (mode A,  $m=0$ ) the frequency when no accretion is present on the oscillator. Considering any amount over this to be the "over-value" as claimed, the over-value is calculated empirically based on the greatest oscillation frequency (assuming no deterioration) as a function of corresponding maximum allowable process conditions and uncovered (or unimmersed).

Regarding **claim 18**, the apparatus of D'Angelico has a maximum allowable accretion frequency which is used to determine when the alarm is triggered which is taken into consideration when determining an over-value as claimed.

***Response to Arguments***

Applicant's arguments with respect to claims 10 and its dependents have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARK SHABMAN whose telephone number is (571)270-3263. The examiner can normally be reached on M-F 8:00am - 4:30pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hezron Williams/  
Supervisory Patent Examiner, Art  
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